California GARDEN

MAY–JUNE 1975
Volume 66, Number 3
Fifty Cents

Meetings

May 19, 1975: Mrs. Kirkpatrick's Flower Arranging Demonstration; Room 101 Casa del Prado, 10:00 a.m. to 12:30 p.m.

June 17, 1975: San Diego Floral Association Annual Meeting; Pot-luck Dinner at 6:30 p.m. in Room 101, Casa del Prado, Balboa Park.

Special Events

May 12 through 16: Biennial National Convention of the Cactus & Succulent Society of America; Bahia Hotel–Mission Bay.

May 17 and 18: San Diego Geranium Show; open both days 10:30 a.m. to 5:30 p.m. Casa del Prado; FREE.

June 7 and 8: San Diego Fuchsia & Shade Plant Show ; Saturday 12:00 noon to 5:00 p.m.; Sunday 10:00 a.m. to 5:00 p.m. Casa del Prado, Balboa Park; FREE.

June 23 through July 6: Southern California Exposition at the Del Mar Fair Grounds. Come and see all the beauties of the plant world.

Tours

June 7, 1975: Annual summer trip to Ensenada, Baja California; depart from La Jolla Library at 8:00 a.m.; depart from Balboa Park at 8:30 a.m.; $12.00.

May 17 & 18: Santa Barbara and Solvang; tour of the Santa Barbara Botanical Gardens; spend the night in Solvang and tour on Sunday before returning home Sunday evening; transportation and motel included for doubles $32.50; for single occupancy $40.00.

May 22, 1975: Julian Wildflower Tour; $7.00.

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ABOUT THE COVER

Opuntia macrorhiza: A native of Central U.S. and of the Southwest. It is a prostrate cactus with oval green joints about six inches long with large areoles and prominent tufts of brown glochids. This cactus has a redish flower and will develop large tuberous modules like small potatoes on underground roots. These will sprout when cut and planted.

Our cover artist is Ilsa Scheer. She is a free-lance artist having illustrated for Norcross Cards. Many of her water colors are exhibited in galleries across the United States. She is a new member of San Diego Floral Association and an ardent gardener as well. Playing the viola is another of her talents.

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I Wouldn't Want To Be One

by HELEN WITHAM

Photo by Betty Mackintosh.

YOU'LL HAVE to face it, there really are people who don't like cacti!

I lost my taste for cacti at an early age, when my father partially cleared and built a house upon a cholla-covered hillside east of San Diego. I believe I was about four years old and my brother about three when the family moved out there. We left a city lot where the greatest hazard were the bees on the Lippia lawn—what a move to "cactusland".

In our new home we learned about chollas fast! We had enough cholla joints stuck on our feet, ankles, knees, elbows and even foreheads to cool any affection that might have developed for these tough, sturdy, red-flowered plants. Later we were pulling cholla joints from the lips, jaws, legs and tender under-belly skin of horses and cattle. Just recalling all that gives me goose-bumps.

We "cleared" that hill for years and years. Even though we didn't like the plants we were forced to admire their persistence. Chollas could be piled up, left to dry (for months or years), and burned, but there were always survivors.

This stubborn plant is *Opuntia prolifera*. Some very old plants stood taller than my six-foot father, and truly they were proliferous with their knobby joints in those long strings that come undone so easily. We didn't kid ourselves that they "jumped" but we knew it didn't take much to separate them. A light brush with a shirt-sleeve or a jolt that jiggled the trunk or main branch or even turning a carefully detached branch on its side would cause little ones to drop off. If they fell into the grass they were nearly impossible to locate and of course that's just what they wanted. They just stayed there quietly until they were stepped upon. Some would grow roots on whichever side happened to be nearest the earth. They didn't have to make actual contact with the soil—all they needed was to be within "smelling distance". Occasional seedlings appeared too. They were delicate cylinders of tender green that stood unnoticed until grabbed by whoever was pulling that last bunch of grass under an orange tree. Don't ever try that on the palm of your hand unless you're really mad at that hand!

It was always a marvel to us that the cactus wrens who nested in the chollas and the packrats who used cholla joints as joists and stringers in their houses apparently could live with the cholla painlessly. We never could!

Many years later I must admit that as a horticulturist dedicated to collecting and growing our native plants I still don't like cacti enough to grow them—but I do find them exceedingly interesting on a purely intellectual level.

Chollas and barrels and prickly pears and cardons and organ pipes—now those are fine upstanding members of the community, members who make their presence felt.

How do they handle the problems they face as inhabitants of a typical desert? Problems to do with scant and uncertain rainfall, great heat, abrasive blown sand, soils having toolittle humus and frequently too high a mineral content for optimum growth? They have adapted. This doesn't mean, for example, that they held a meeting where someone stood up and said, "Hey, if we'd stop hanging out leaves we wouldn't lose our water so rapidly". It was more a selective process in which, over centuries and millenia, those with fewer leaves lived longer and produced more offspring. After a while none had leaves. So, not bothering to hang out leaves to dry is a useful strategy in coping with a desert environment.

Another is to provide yourself with a built-in water tank. The fleshy columnar, globose and flat-jointed cacti have the capacity to absorb large quantities of water rapidly, shrinking slowly as the stored water is used up in the plants' life

processes.

"Shaping up" is another strategy to follow. A leaf is mostly surface, exposed to heat and dry air. But, a barrel—now there's a shape that prevents both heat and moisture-hungry air from reaching its insides.

Try not to breathe much or often. Cacti have few stomate (pores) on their surfaces and these open only at night so the plants can absorb the carbon dioxide they need from the air without losing as much water as they would in the daytime.

Grow your own barbed wire. So what if they are green, juicy and tempting in a land where green-and-juicy is scarce! With a variety of spines and, in some cases, innumerable glochids, they protect themselves from most hungry animals. No matter how tempting a plant may be in the center of a roll of barbed wire—no thank you!

Grow your own awnings. The spines have other uses. They provide moving shade, cutting down heat in the same way as a lath house. They also reduce abrasion by sand, and loss of water to dry air. The light color of some cactus spines reflects heat and light away from the body of the plant.

Provide your own wax or plastic coating. How do we keep a head of lettuce from drying out? Wrap it in a waterproof bag. Essentially that's what a cactus does. Many kinds have a waxy or resinous coating that prevents intolerable water loss. The coating also helps protect the plant from whatever is thrown at it—like windblown sand that can pit a windshield or un-paint an automobile.

So, even though I don't particularly care for cacti, I must admire them for their staunchness and the shining beauty of their flowers. Still, I really wouldn't want to be one! □

Giant Cardon in fruit.

Succulent Eating

by ROSALIE GARCIA

Rosalie Garcia is a National Council Judge and a Chairman of Judges of the San Diego Council.

IN SPITE OF THE abundance of fruits and vegetables in our markets, an uneasiness underlies our affluence which has sparked a trend toward stockpiling dried foods and a studying of wild foods so that in time of disaster we can live off the land. Seeing Euell Gibbons eating "Grapenuts" on television has inspired many to read his books about the wild fruits, vegetables and fish which are ready for the harvesting. I hope hordes do not take his advice and dig up what is left!

The succulent family has added to the diet of primitive desert and jungle people as far back as we know. Thanks to cactus and succulent clubs throughout the world and their experiments with eating the various cacti and succulents and adapting them to modern recipes, we have such cookbooks as THE CACTUS COOKBOOK compiled by Joyce L. Tate. It includes recipes by members of the local cactus and succulent society. Nibby Klinefelter kindly lent me her copy.

A majority of the recipes come from two common plants: the Optunias, and the Agaves. The Opuntias fall into three groups and many genera, but the one known best is *Ficus indica,* or the common Prickly Pear Cactus which produces the red-purple fruit in the fall, and the tender flat pads in the spring. It grows in big clumps in hedges, fence corners, on the sides of hills and any neglected spot throughout our deserts and in Mexico. Nature has protected it with spines so sharp and poisonous that one must approach it with gloves and tongs and a portable flame. Although I had on gloves, I managed to still get a spine in the side of a fingernail. The injury was sore for a year and finally had to be lanced.

To slice off the tender stem, which looks like a small seal flipper, use an apple corer to gouge-out the aureole which surrounds the spine. Once the smooth stem is despined one may cut it in cubes or strips and cook it like peas or string beans. In Mexican markets one may find them processed in bags or in tubs from which they are scooped up and sold.

The fruit, prickly pear or tuna as the Mexicans call it, also has spines which can be rubbed off in the sand, by holding over a flame, or by pinning the fruit down and stripping off the skin in sections. The flesh is a ruby jelly with seeds which have a delicate, slightly sweet-tart flavor which combines well with other fruits. It makes a beautiful jelly. Being the main fruit of the desert, it was fermented into wine, boiled down into syrup, dried or just eaten fresh. We can do the same, if one will take the risk and trouble.

The Agave is really the star of the succulents. There are many varieties, but they grow in rosettes of sharp pointed gray-green leaves and have bloom stalks, varying in height from a few feet to fifteen or twenty feet. One such is our spectacular *Agave americana* or Century Plant. Carol Neithammer in her book THE AMERICAN INDIAN FOOD AND LORE, says this plant seldom lives over forty years, and does die after blooming; but it perpetuates itself by sets of new plants at its base before it dies. Its heart, bloom stalks and blossoms are all edible. Not long ago I found a seasoned heart of an Agave in the Open-Air Market in Tijuana. One could buy strips of the dark brown, sticky sections and chew them—a pleasant slightly tart juice was the reward. The whole thing looks like a giant pine cone.

Since Agave is the genus for the plant, it is sometimes confusing to find the terms maguey and mescal used in Mexico. Since food and drink have been made from various Agaves grown in and native to Mexico, the plants are usually mentioned as maguey, named for the Goddess Mayahuel, goddess of the drinks. Mescal is also mentioned as the name of the plants, but more often of the drink, which is a fermented crude drink from *Agave*

palmeri and *parryi*, grown commercially. All three of the Mexican drinks (pulque, mescal and tequila) come from these Agaves.

Pulquerias, little shops where pulque is made fresh daily and sold from open barrels, are common in the towns and villages of Mexico. Pulque is made from the juice extracted from the crowns of the above mentioned Agaves. The fresh juice (aguamiel or honey water) is allowed to ferment naturally for about ten days. Then an equal amount of fresh juice is added and allowed to set a day or two and is supposed to have a very low alcohol content. However, when Nature is allowed to do its thing, drunkenness often results when this drink is consumed. The Health Department of the Mexican government has tried to close the shops or regulate them. According to George C. Booth in his book FOOD AND DRINK OF MEXICO, the nutritionists discovered that pulque is full of vitamins that are lacking in much of the Mexican diet. Since milk is scarce in Mexico, children have from time immemorial, been fed pulque and have fared well on it. So, pulque is still a popular drink. It is a thick white liquid with the consistency of buttermilk and similar in taste. A distilled but unrefined pulque is called mescal, and is said not to leave a hangover. What we know best is tequila, is distilled pulque which Jose Cuervo has made famous in his big distillery in Guadalajara.

All parts of succulents have been used as foods. The flowers and buds often make delicious vegetables, if one is willing to forego the very beautiful flowers. The crisp white petals of the Yucca plant "Spanish Dagger" make a delicious cream soup, but the buds are "succulent" in salads. Joshua Tree buds, first boiled, then served with butter make a delectable vegetable. One may fry the buds of the Century Plant if they are boiled for five minutes then cocled in ice water for half an hour.

Barrel Cactus, or *Ferocactus hamatacanthus* has lemon flavored fruits. Chunks of the bloom stalk of many of the Agaves boiled in water make a delicious drink. The Rosetta variety of the ephyphyllum has a small red juicy fruit not unlike a strawberry and it can also be used as such.

Many of the succulent roots and tubers are edible, having a nut-like flavor when roasted. Since there is little commercial processing of the succulents, one must be a "do-it-yourselfer" to get results. The processes of digging up, cutting off parboiling, and learning the plant seasons, have a spirit of adventure about them.

Flours are made from the seeds of the Saguaro as well as from those of the Prickly Pear and the Agaves. The seeds are first roasted and then ground into flours. Sometimes one can find some of these in health food stores.

In Mexican markets one may find rectangular bars of candied hearts of the Barrel Cactus. They have a delicate flavor and are sticky and juicy when sliced for dessert plates. Mexicans are experts at candying all parts of various fruits and vegetables.

This list is only a sampling of the edible succulents which grow in our gardens or in the wild. The books mentioned here have details for preparing recipes. Try some of them. They will add another dimension to your menus and will certainly cause conversation at the table if nothing else. □

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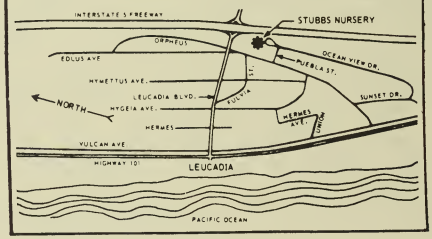

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Flora of the Tia Juana River Slough

by EVE B. JONES

Eve Jones is a senior at San Diego State University majoring in botany.

GROWING PLANTS in San Diego can often be difficult with salty water, salty soil, and sometimes salty air. But these salty problems are minimal when compared to those encountered in salt marshes by plants growing where fresh water drainage meets the sea.

One such area in San Diego County is the Tia Juana River Slough, located on the coast in southern Imperial Beach. Influenced by tides, storms, and run-off water from "dry land", this area is subject to high and constantly changing levels of salinity, extremes of temperature (as much as 50 degrees), and unstable ground. Most people would not consider growing plants in such an area, as it would seem quite amazing if any plant could survive, even for a short time. But, survive they do. Plants cover almost the entire slough managing to far surpass the productivity of any Kansas wheat field. Three plant species, *Zostera marina, Spartina foliosa,* and *Salicornia virginica,* are quite common and abundant in the slough area on the three lowest levels of the salt marsh.

The lowest zone of the salt marsh, the intertidal mudflats and channels, is the habitat of *Zostera marina*, commonly called eel-grass. Sometimes considered a community by itself, this seed plant, a hydrophyte or true water plant, is generally found only in bays and salt water sloughs. Because of its almost constant submergence in water, eel-grass has no need for strong, supportive tissue, but instead employs air spaces in its blades and stems, using the boyancy of the water for support. These air spaces also act as storage areas for the oxygen needed for metabolism. The roots are quite extensive and strong, at times keeping the soil in place, and serving as a habitat for many small organisms which include Pistol Shrimp, Gould's Bubble Snail, and Ghost Shrimp. Several species of algae are epiphyticon its baldes, at times concealing the entire original leaf surface. This algae, in turn, provides shelter for other microscopic algae. Also used as a source of food, *Zostera marina*, even in death and decomposition, is still a vital part of the intertidal zone.

The soil in higher areas of the salt marsh, though slightly drier than the intertidal zone, still is not acceptable for the growth of most plants. The soil is water-logged, salt impregnated, generally lacking in oxygen, and is still unstable and constantly re-arranging. The low marsh is generally under water, with a few hours of exposure to air. The high marsh is usually exposed to air, with extremely high tides and spring tides flooding the area. As the vegetation progresses upward, the more salt tolerant species "bow out" to the less tolerant species such as *Spartina foliosa* of the low marsh does to *Salicornia virginica* (and other species) of the high marsh.

Spartina foliosa, commonly called cordgrass, is a dominant species of the low marsh, helping in stabilization of new mud deposits. An ability to withstand up to 21 hours of continuous submergence, makes *Spartina foliosa* quite acceptable and abundant in the Tia Juana River Slough area, sometimes to the point of giving a "meadow-like" appearance. Because it is a halophyte, *Spartina foliosa* is able to stand soils of high salt content by excreting excess salt through special glands. Often small white patches of salt crystals will appear on its leaves. The leaves and roots consist of hollow passages through which air constantly moves, even when under water. It is a perennial, spreading by runners, with stems sometimes three to four feet tall. The productivity of *Spartina foliosa* is incredible, considering that acre for acre it produces five to ten times as much nutrient material and oxygen as wheat. Although it is not commercially exploited at this time, *Spartina foliosa* does appear to have agricultural possibilities.

Salicornia virginica, another halophyte, is

one of the species found in the high tide zone. Commonly called pickle weed, it is one of the most wide-spread of the salt marsh plants. Its roots offer stability to the banks and sides of the salt marshes. Being a succulent, it consists of fleshy, segmented, leafless stems, swelled with stored water. Although less tolerant of submergence than *Spartina foliosa* because of its poor capacity for oxygen storage, *Salicornia virginica* is at various times submerged in salt water. It can selectively concentrate certain salts in its cell fluids so as to maintain a balance necessary for osmosis. Other less specialized plants would soon wilt and die.

The Tia Juana River Slough thrives with life. Explore the marsh some sunny day and get to know some of the inhabitants. I suggest you wear your sneakers, and you might like to bring along a friend—just in case you need someone to pull you out of the mud. □

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Africa In California Gardens

Ed & Betty Gay are long time members of the Cactus & Succulent Society of America and are also members of the Los Angeles Cactus & Succulent Society.

by ED & BETTY GAY

HALF A WORLD AWAY from southern California lies South Africa. There, far below the equator, July and August are cold, rainy, midwinter months. Summer heat is at its most intense in January and February. Thousands of miles of ocean separate its native plant life from our own. Hundreds of jungle and desert miles create a barrier almost as great between its vegetation and that of Europe. It follows, then, that plants from that region of the world must be weird and wonderful to behold, strange and exotic to our eyes.

Certainly that is true to a degree. How often do we see a full-grown Baobab tree in all its grandeur, or a garden of marvelous protea blossoms? And yet, how many of our everyday garden and landscaping favorites are South African natives! The "ice plants", *Mesembryanthemum* species that are carpets of color on coastal hillsides and embankments; the "Bird of Paradise", official flower of Los Angeles, *Strelitzia reginae*; African or Transvaal daisies, *Gerbera* species; the lovely profusion of colorful pelargoniums; and of course, the aloes—these are all favorites.

Of some 330 known *Aloe* species, more than half are native to South Africa or the neighboring island of Madagascar. The remainder are from tropical Africa, Arabia, and Socotra. What is it that makes southern Africa and southern California both such hospitable homelands for these succulent members of the lily family?

Like California, South Africa has a highly diversified geography, with plateaus, steep slopes, deserts, savannahs, and the southwest Cape region. This coastal area, with thirty inches of winter rainfall and rainless but somewhat humid summers, has a climate so much like southern California's that it is indeed no surprise that its plants find themselves so perfectly at home and grow so beautifully here.

The great diversity of growing conditions has resulted in a wide range of sizes and growing habits. Nearly always the leaves are fleshy, forming a rosette. The flowers are typically tubular, yellow to red, individually small but clustering on long spikes or branched racemes to form strikingly beautiful, long-lasting displays. The plants may be tiny in size, rare in cultivation, real collectors' items, like *Aloe haworthioides*. They may grow into huge trees, like *Aloe bainesii*. They may form tall trunks, grow flat on the ground, branch, cluster, or straggle through shrubs in almost vine-like fashion. In short, there is hardly a California garden which can't use an aloe—or still another aloe.

How best to choose the right aloe for the right spot, and then to keep it in top condition is a frequently asked question. A serious aloe enthusiast will study the definitive books on the subject: G. W. Reynolds' ALOES OF SOUTH AFRICA, and ALOES OF TROPICAL AFRICA AND MADAGASCAR, Barbara Jeppe's SOUTH AFRICAN ALOES, Scott E. Haselton's SUCCULENTS FOR THE AMATEUR, or Hermann Jacobsen's A HANDBOOK OF SUCCULENT PLANTS. The majority of us aren't quite that serious. For that majority, here are some hints that we hope may prove to be useful.

A rock garden or rocky hillside is an ideal aloe site since most of them grow in nature with their roots wedged among rocks. In a hot climate, this helps keep the roots cool and moist. Too, the long-stemmed species need to be as well-anchored as possible, since the root system is not particularly long or deep. With or without rocks, though, they do require good drainage. In nature, some of them grow where rainfall totals fifty inches or more each year, but they are always on steep slopes with very good runoff. Sloping ground is especially suitable for those which naturally grow with their rosettes at an

angle, because these may rot if water collects in their centers. Most of them will not tolerate temperatures below 25 to 30 degrees F. for very long, so a somewhat sheltered location is best.

There are a few which prefer acid soils, notably *A. plicatilis*, the beautiful but slow-growing tree aloe whose branches end in perfect fans of flat, strap-like leaves. Another small group are happier in alkaline soil. Of these, the most common is *A. brevifolia*, stemless, clustering small heads of plump light blue-green leaves edged with small white teeth. Neutral soil is best for the majority and at least acceptable for all. Soils which are heavy or have a high clay content should be modified by the addition of leafmold, bone meal and up to one-third sand. Surprisingly, aloes are hungry feeders. They are like many of our own southwestern desert plants, which seem at first glance to grow in totally arid, sandy places. Actually the soil at their roots will be found to be high in both minerals and humus, from the wind-blown leaves of other shrubs.

Not alone for a satisfying diversity of forms in the garden, but for the best condition of the aloes themselves, they should be grown among other plants. Africa has many acacias and related trees, as do we. With dark, rugged stems and lacy foliage, these are attractive companions for some of the statuesque unbranched long-stemmed aloes, such as *A. thraskii, A. africana, A. marlothii* or *A. ferox,* as well as for smaller species. The filtered shade they provide and the humus from their leaves are both welcomed by aloes which grow under similar conditions naturally.

There are a number of tall, tree-like species which will grow in a relatively few years to become stunning specimen plants. Largest is *A. bainesii* which is similar in habit (tall and branching) to *A. pillansii.* Most unusual, with its fans of flat leaves, is *A. plicatilis.*

Another species well worth seeking out is *A. dichotoma.* It branches symmetrically in opposing pairs, forming a dense crown of fleshy light green leaves topped by spikes of yellow flowers. In its habitat, *A. dichotoma* is likely to grow among shrubs and trees, particularly when the stems are bare without the protection of persisting dried leaves. *A. pillansii* and *A. plicatilis* usually bloom in the spring; *A. bainesii* and *A. dichotoma* bloom in winter. Lower growing plants near them could be chosen to provide flower color in complimentary seasons of the year. Lists of flowering months are published in the books by Barbara Jeppe and G. W. Reynolds, cited previously. Usually—but not always—the flowering time in California will be six months later, since winter in South Africa is summer here.

Another effective landscaping use of aloes is to form groups of plants of a single species in a repetition of form and color to mass in a corner, scatter in profusion, sweep across a slope, or to outline a special area. All sizes are available. Here are some examples and approximate sizes:

In the three to five inch size, try the delicate blue-green rosettes of *A. parvula*, or the grayish incately patterned ones of *A. rauhii.*

In the six to eight size, try the very distinctive, spotted, triangular-leaved "partridge" aloe *A. variegata* or the beautiful *A. aristata*, a mass of soft, incurved dark green leaves, frosted with white dots and fringed with soft white spines, or the more casually arranged slender leaves of *A. bakeri* or *A. jacksonii.*

In the ten to twenty inch size, try *Aloe vera (barbadensis)*, the world-famous medicinal aloe, its light green leaves dusted with bronze and silver tones, or *A. saponaria*, whose densely spotted bright green rosettes send out new sprouts at such a pace that they can soon cover a five foot area or *A. striata*, whose light green leaves have a very distinctive smooth pinkish margin, and whose procumbent stem eventually will sprout several rosettes along its length of a yard or more.

Some species will quickly form handsome symmetrical mounded clumps several feet in extent. Among these are *A. ramosissima, A. ciliaris,* and the always popular *A. arborescens,* whose spikes of red flowers are such a bright garden accent at Christmas time.

These are obviously only a very small sample of available aloes. Some grow in the veldt, sheltered by grasses, some on cliffs in the mists of waterfalls, others high in the mountains where it is very cold, some grow where the heat is intense and rainfall is infrequent. In short, something for every climate in California. Many look quite similar and are hard to distinguish. Many are hybrids, having crossed either in the wild or in

Aloe dichotoma.

Aloe thraskii

Aloe bainesii at Hunting Garden, San Marino.

gardens. Others, though, are very distinctive, beautiful and worth searching for. An example would be *A. suzannae*, whose long, rounded, very slender leaves are so dark as to appear almost black. Or, *A. conifera*, a mid-sized, stemless beauty, whose striking unbranched bronze and yellow flower spikes are cone-like in their compactness. Others worthwhile are *A. capitata*, a short-stemmed aloe with branching racemes topped by thick tufts of dangling orange-yellow tubular flowers; *A. albiflora* and *A. campanulata*, graceful miniature aloes with dainty bell-shaped flowers; *A. bulbulifera*, so eager to grow and multiply that it not only sprouts from the base and sets seed generously, but also forms new plantlets on the flowering stems.

On the subject of propagation—aloe seeds are plentiful and easy to grow, but they hybridize just as easily. Usually it is easier to propagate from offsets. Those forming at the base of the plant often have well-formed roots by the time they are big enough to remove. After removal, several days of drying time should be allowed, the time depending on the extent of the cut surface. The cutting may then be planted either in a container or directly in the garden, in soil composed of one-third each river sand, compost, and loam. If planted directly in the soil, the weight of the crown may be supported by staking up the plant and surrounding the base with large rocks until the roots are well established. As little as possible of the stem should be submerged. Unlike some other succulent plants, aloes will not propagate from leaf cuttings. A rosette with at least a short section of stem is required.

If seeds, but not plants, of a desirable species are obtainable, do not hesitate to try them. Nearly all will germinate and grow well. The universal "succulent plant mix" of one third each sand, loam and compost is a satisfactory growing medium. Seeds should be scattered on the surface of a not-too-deep container, and covered with about one-eight inch of soil, then with coarse sand or fine gravel to help the weak root system support the young plant. A warm but shady location is needed. The seedlings should not be allowed to dry out, but neither should they be kept too wet, since damping off is the main hazard to their growth. In about a year they should be large enough to transplant.

Here are a few hints for tending various aloe types: Soft-leaved, usually small species, including those on which the leaves die back in winter, are from "grass-veld" regions and need rich soil and plenty of water during the summer. The base of the leaves should be above ground level. Stemless species, with more rigid leaves, are usually from areas of low rainfall where they are found on rocky slopes. They need good drainage and plenty of sun. Procumbent species, eventually growing with stems lying along the top of the ground and a terminal rosette of upturned leaves, prefer sloping ground, sunny positions, and not too much water. Species with erect stems, three to six feet or more in height, are generally from rocky areas of low rainfall. If the lower leaves tend to drop off, leaving the stems bare, they are especially likely to need warm locations or the protection of other shrubs in winter. They endure a good deal of summer heat but do not stand up to severe frosts and should be protected from cold winter winds.

A well-grown aloe with ample light and air, sufficient nourishment, and good drainage will also be a healthy aloe, able to throw off diseases and infestations quite successfully. The ailments of this genus are those which afflict most other succulent plants: scale, mealy bug, mites, fungus (black spots or rust), rot, and bacterial infections such as crown gall. These conditions, caught early, can readily be controlled by preparations available at most nurseries. Rot, of course, may be triggered by over-watering or poor drainage. Probably the worst affliction of aloes is the condition known as "aloe mite" which produces tumorous malformations of the plant and for which no proven remedy is known, except to promptly and completely remove and destroy the affected plants. Unfortunately, at first the characteristic malformations triggered by the aloe mite can easily be mistaken for exciting crests or fasciations.

We are confident that nearly all California gardeners will find, as we have, that aloes are well worth cultivation for their great diversity of interesting form and color. The bright accent of their flowers may be enjoyed in any desired month of the year. These flowers are also a winter favorite as a nectar source for hummingbirds, the American counterparts of the African pollinators, brilliantly colored sunbirds. □

Guidelines For Fertilizer Use

by GEORGE JAMES

THE NOUN 'fertilizer' has several possible meanings and to define it as used in this article, it identifies dry, commercially prepared concentrated plant foods. Fertilizers are available in formulas which differ in the amount of plant food or the ratio between the plant food elements they contain. The wisest use of the gardener's fertilizer dollar comes when the gardener has some ability to interpret the information listed on the label of the fertilizer package. The label will reveal the amount of plant food the product contains by listing three numbers which are separated by dashes, such as 6–10–4. When these three numbers are added together they total 20 which tells us this product has 20 per cent plant food and 80 per cent inert material. The numbers 6–10–4 tell us the amount of each of the major plant food elements contained.

The numbers used to indicate a fertilizer analysis are always written in the same sequence—nitrogen, phosphorus, and potash. Nitrogen is the plant food element which enables plants to make vegetative growth and its lack may be indicated by poor foliage color. Fertilizers which are intended to induce growth will have the first number in the series larger than the other numbers. The second element, phosphorus, is used by plants to develop flowers and fruits, among other things. There are fertilizers made especially for this purpose and the second number in the series will be larger than the first to indicate this. The third figure indicates the percentage of potash in the fertilizer. Potash is used along with the first two elements for plant growth. This simplification of the numbering system for fertilizers will help readers evaluate their formulas and aid in the selection of one that will meet your needs.

There are some plants that need little or no fertilizing, such as mature shrubs and trees that have good foliage color and are making satisfactory growth, or plants whose roots have grown into a well-fertilized area and are getting enough food from this source. There are some conifers that will grow in a natural, desireable shape if not forced too much by fertilizers and will soon loose this natural growth when over-fertilized. More attractive specimens of Italian Cypress, *Cupressus sempervirens*, and Twisted Juniper, *Juniperus Chinensis* 'Torulosa', will result with careful fertilizing.

There are other plants which should be fertilized on a regular schedule if they are to grow and look their best. Lawns, roses, annual flowering plants, many varieties of vegetables, and young and small landscape shrubs and trees, all are better if stimulated by several fertilizations per season. Plants growing in containers, once the containers have become filled with roots, need to be fed regularly if they are to remain healthy and attractive.

Some plants are better off if they are fertilized at specific periods of the year. Camellias behave their best if they are fed between the time they finish flowering and the end of August. Any kind of plant which may be frozen will be better able to withstand frost if they are fertilized between the first of April and the end of July. This will permit growth which is induced by the fertilizer to mature before the frost comes. Some varieties of deciduous fruit trees, especially Persimmon, Apricot, and Plums, may produce excessive shoot growth which in turn can reduce the fruit crop, if they are fertilized in the spring. This can be prevented by applying the fertilizer after the crop has been harvested.

In most cases the application of a commercial fertilizer during the cold months of December, January, February is of little value to the plant at that particular time. The plant food elements in the fertilizer cannot be absorbed until they have been converted to a water soluble state by organisms in the soil and when the soil is cold, these organisms are inactive and therefore the conversion

does not occur until the soil becomes warm again. It has been found that an application of fertilizer to Bermuda lawns during November (allowing the conversion to occur before the soil becomes too cold), enables the lawn to hold its green color a little longer and helps it to recover quicker after it has turned brown. Winter annuals and vegetables can be fertilized at the same time and will then go into the cold months with a good supply of plant food stored in their tissues.

The following recommendations when using fertilizers, if observed, will reduce the likelihood of damage to the plant and make the fertilizer more effective. The amount of material used is described in some form in the directions on the label, and if this advice is followed there is less danger of damage. The use of more material than recommended can result in damage to the roots, and if much less is used, the benefits may not even be apparent. If, in the gardener's judgement, more fertilizer is needed than is indicated, it is safer to make two applications several weeks apart than to risk over feeding with one more liberal application. When fertilizer is applied to plants that are well filled with water and to soil that has been well-dampened, the danger of damage is greatly reduced. Plants or soil that is dry should be irrigated liberally 24 hours before the fertilizer is applied. The conversion of the plant nutrients in the fertilizer to water soluble forms will occur quicker if the fertilizer is mixed into the soil. If cultivation is not possible, soaking the fertilizer in with water is the next best treatment. Lawns should be mowed before fertilizer is applied, and then make applications when the blades of the grass are dry. After application, wash the fertilizer through the grass to the surface of the soil below with a stream of water from a hose. The sprinklers used to water lawns apply water in a fine and gentle stream which will not carry the fertilizer particles through the grass. If the particles remain close to the top of the grass they may be picked up by the mower and carried away. □

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Garden Tour

photos and text by BILL GUNTHER

THE GARDEN of Mrs. David Woodward, at 373 San Gorgonio Avenue, on Point Loma, is among the most historic, the most beautiful, and the most admired gardens of the San Diego area. Originally, it was designed by Kate Sessions, but during the last 25 years the original design has been extensively modified and updated by the coordinated work of Mrs. Woodward, herself, and by that of her consultant, W. S. Sinjen.

The Woodward garden was the site of the April 1975 meeting of the San Diego Floral Association, and that occasion provided a good opportunity for obtaining photographs of some of the highlights of that spectacular garden. Some of the resulting pictures are published herewith. For all those who attended the April meeting, these photos will serve to recall the memories of a most enjoyable afternoon. For those who were unable to attend the meeting, these scenes will convey but a fraction of all which was missed.

above: Patterns of sunlight and shadow blend with the flagstones, tile, foliage, and the arches of Mrs. Woodward's patio. The total effect is expansive and palatial. The sculpture in the center background is called "Venus".

left: The green calla, of the genus *Zantedeschia*, is one of Mrs. David Woodward's favorite plants, and consequently it is understandable that visitors to her garden might notice several clumps of it. The camera caught Mrs. Woodward's happy look as she admired the blossoms of one of the clumps.

Above is the beautiful blossom of Mrs. Woodward's African Linden tree, ***Sparmannia africana***. This tree was in full bloom for the San Diego Floral Association's meeting, and it very deservedly had much attention. // One of the most admired of the residents of Mrs. Woodward's garden is the little boy called Marcelino who is pictured below. Marcelino always stays in the same spot in the garden; perhaps he likes that spot because there he is in the full sunshine.

Archontophoenix cunninghamiana is a species of palm which, in nature, never "clusters" or sends out offshoots. But in the Woodward garden, three specimens deliberately were planted in a cluster formation. The effect is very dramatic. // The pastoral scene below shows W. S. Sinjen admiring a scantily-clad lady who seems to be drinking from one of the pool fountains. But actually the lady isn't really drinking. She doesn't drink. She is one of the figurines which grace the Woodward garden.

Orchidology

by BEN HARDY

THE HOBBY OF orchid growing can be traced back a couple of hundred years, but recorded history of orchids extends back over a period of two thousand years, both in Western and Oriental literature. The Chinese name for orchids is "lan", but the family name accepted both in common usage and in botanical references comes from the ancient Greek civilization. To say the Greeks had a word for it is quite an understatement, but they are the ones credited with pinning the name "orchis" on a group of plants which are still found in the Mediterranean regions. This word became the basis for the orchid family name which is the largest genus in the flowering portion of the plant kingdom. These early plants first described about 300 BC, were terrestrial orchids that usually had two tubers at the base of the stem. Leaving nothing to the imagination, the Greeks labelled these plants *Orchis*, which means testis. From this early first beginning, orchids were usually associated with medicinal and aphrodisiac properties by these ancient people, and this continued on up into the mid-1600's.

The collecting and growing of orchids for their uniqueness, beauty, and rareness actually started in the mid-1600's. This period ties in with the start of the many journeys of exploration that the English dispatched throughout the world in quest of scientific knowledge and collections for their many budding museums and scientific societies. The first recorded importation of an orchid from the New World was a native *cypripedium* from North America in 1640. This was soon followed by the discovery of the more tropical varieties of the Caribbean Islands followed by *Vanilla planifolia* from Central America. Though first recorded in 1519 by Cortez during his conquest of Mexico, it was 1739 when vanilla plants were first cultivated in England. By 1789, the first edition of Alton's Hortus Kewensis listed fifteen exotic species as being in cultivation at the incomparable Kew Gardens.

But, it was the blooming of *Cattleya labiata* in 1818 that really started the orchid craze that soon swept England and the Continent. In all of the known flowering plants of that time, there was nothing to compare with the flamboyant beauty of this *Cattleya* species. What makes it even more fantastic was the way this fabulous plant found its way to England as packaging material around other tropical plants that were shipped in a crate from Brazil. A Mr. William Cattley evidently was intrigued by this unusual and unknown plant packaging material and apparently found some way to grow and flower this material. This orchid was described by John Lindley, the famed botanist, after it bloomed and he established the genus in honor of Mr. Cattley. Soon thereafter the rush was on by nurseries and private growers disptaching collectors to Central and South America. Thus the orchid rush of England and the Continent was well underway.

The Duke of Devonshire is credited with the starting of the fashionable trend in orchid collecting and growing in 1833 after seeing a blooming plant of *Oncidium papilio*. The very wealthy Duke hired his own collectors and dispatched them to the tropics and within ten years had accumulated the largest private collection of orchids extant. The pity of this madness was the tons and tons of orchids that were stripped from their native habitat and shipped by the crates back to the old country. The loss of these plants in transit was very often complete because of the time involved or disasters that seemed to strike all too often. After they arrived at their destination most of the nurseries and private growers had no known or proven methods for growing these tropical gems. Many of these plants were potted as though they were terrestrials and then placed in a glass house that

was usually too hot, too dry, and with no vital air circulation. Very few of these early collected plants ever survived the horrendous treatment they received. Knowledge of the basic needs of these "parasites" was slow in coming.

While the craze of orchid accumulating had its biggest boom in the British Empire, the United States entered the game in 1838 with the first recorded shipment of orchids from London to Boston. The lack of a well-entrenched wealthy landed class in the United States inhibited the spectacular auctions and collections that were built up in England. Orchids for the ordinary gardener got their biggest boost in the United states in 1920 with the founding of the American Orchid Society. □

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Old Town Plaza Before and After

Before and After: Above is the Old Town Plaza as it appeared early in 1928. It was little more than a dusty parking lot, with "Ramona's Marriage Place" in the background. As you can see from the bottom picture taken later that same year, quite a few improvements were added. Mr. Jerabek planted the sapling trees which in the photo appear almost like stakes; today they are good sized. □

Arranging An Aloe

by ADRIENNE GREEN

THE EASY TO grow Aloe is equally as easy to arrange. In this arrangement, the brown, sandy-textured ceramic container, made by Trudy Toulis measures approximately seven inches in height by nine inches in width. A three inch needle point holder is selected to hold the large fleshy stems and leaves of our Aloe.

The needle holder is anchored in the following manner: A hunk of "floral" clay, not modeling clay, is shaped into a necklace. Hands, clay, container and holder are all completely dry. The "necklace" is encircling the outer underside of the holder. The holder is attached to the container by a pressing and twisting motion so that the clay attaches the holder firmly to the container and no water can seep underneath. The clay around the outer edge of the holder is smoothed onto the container to seal it further.

A tall brown toned length of Eucalyptus bark forms the main line of the design. It is responsible for visual stability and stands straight, not tipping forward or backward. The beautifully textured bark continues the pedestal feeling of the container. The red-orange Aloe in different stages of development along with its own curving foliage is placed around the contrasting bark–some forward and some back. For stability, the heaviest concentration of flowers are in the lowest area of the arrangement. They rhythmic movement of the bright blossoms and green fleshy foliage offer pleasing variety to the vertical Eucalyptus bark.

Because of the fact that flowers and foliage begin to lose their freshness immediately after gathering, it is a good idea to pop each stem into a pail of water immediately after cutting and to fill the container at least partially with water during the construction of the arrangement. To maintain maximum freshness, a vitamin such as Hormex may be added to the water. □

Photo by Betty Mackintosh

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The Wrigley Memorial and Botanical Garden

by VIRGINIA MARTIN

THE Wrigley Memorial and Botanical Garden is located on Santa Catalina Island which lies out from Long Beach, approximately 22 miles off the California coast. This garden is a most beautiful attraction and one which should appeal to cactus and succulent admirers. At the head of Avalon Canyon, a short distance from the city of Avalon, the garden comprises an area of approximately 38 acres of land. The Memorial itself is an imposing marble-concrete-tile structure built in 1933-34.

The original Botanical Garden was started in the 1930's and consisted of native plants and cactus and succulents. Many of the latter (some 140 species) were procured from Huntington Gardens in San Marino, California. During World War II, work on the garden ceased and the activity was all but forgotten. There was no fencing and the goats ran wild in the area, dessimating much of the choice plantings.

In 1969 interest was revived and a non-profit organization was set up, dedicating the area to the preservation of native plants of Catalina and the other Channel Islands. A short time later, Mark Hoefs, a young man who grew up on the island and was dedicated to the study of palnts, was named Curator of the Botanical Garden. After a major cleaning out of the overgrown plants and dense underbrush, it was found that about half the original cactus and succulents remained. Most had grown well and had developed into fine mature specimens. Among these are *Opuntia robustus, O. ficus-indica, O. subulata, O. cholla, Euphorbia heptagona, Agave americana, Aloe arborescens, Furcraea roezlii,* and a fine shaped 30-35 foot *Indria columnaris.*

From the entrance gates a roadway runs up to the Memorial itself—a distance of approximately a third of a mile. Present plantings in the garden extend out on each side of the roadway some 100-150 feet. Beyond these limitations the level (more or less) ground abruptly becomes steep mountainside and the plants of the garden blend unobtrusively into the native brush.

Refurbishing has included recontouring the plant beds, native rock borders, walkways and landscaping with many of the new younger plants. The native plant portion of the garden has such endemics as Mountain Mahogany, *Cercocarpus betuloides blancheae*—a large evergreen shrub/tree to 25 feet which produces young shoots of reddish brown. Its small whitish flowers are produced in abundant clusters. The Toyon or *Heteromeles arbutifolia macrocarpa* is used in many gardens and does fine on the island. Lemonade Berry, *Rhus integrifolia*, is a medium to large evergreen shrub (sometimes a small tree) also present. Perhaps the most handsome endemic is the Catalina Cherry or *Prunus ilicifolia lyonii*. This large evergreen tree up to 45 feet tall, spreads well, has flower clusters in dense spikes four to six inches long, and bears a fruit about one inch in diameter which resembles a large black cherry. Unfortunately it contains a large stone and is not especially good tasting. Additional natives, perennials and annuals and California ground covers are also featured.

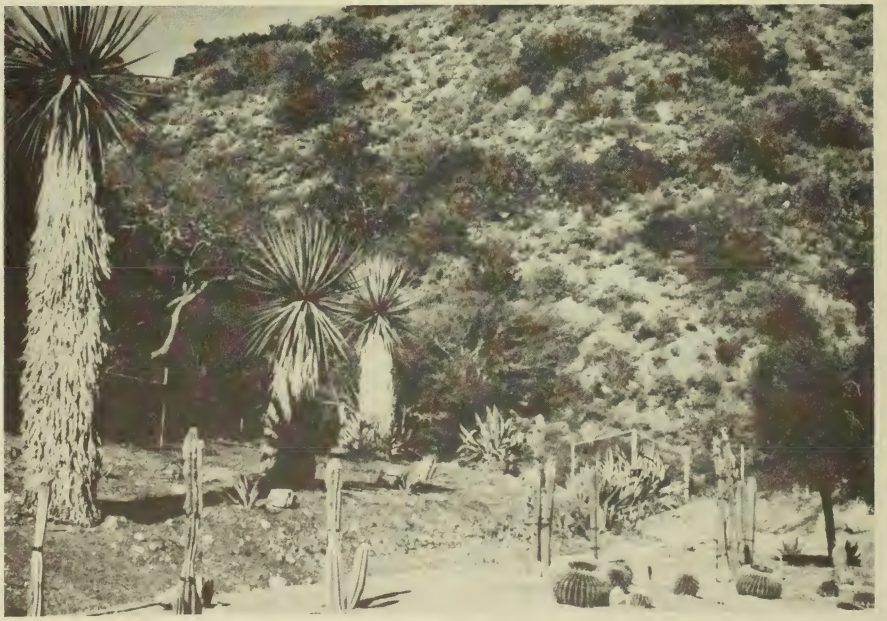
An extensive planting of South American woolly-type *cerei* has been given a prominent place in the cactus and succulent section of the garden. *Mammillarias, lobivias, echinopsis, ferocacti, echinocacti* all are grouped to form a pleasing background for the large *Optunias* and *Agaves.*

The expansive hillside which serves as a facade and setting for the Memorial recently has been planted with *Dudleya hassei* as ground cover. This plant with its dainty spiked creamy-white flowers and powdery green rosettes, is endemic to the island, found mostly southeast of Avalon to Pebbly Beach and in a few other spots on the

island.

Because of the wide variety of trees and shrubs and other ornamental plants, each month or season has its own festive color and bloom. For example, in February the Christmas Berries of the Toyon are still bright red, the *Aloe arborescens* lift their coral-red complex spikes, and the bright golden blooms of *Acacia decurrens* (the "Green Wattle" of Australia) highlight several places. Bright orange flowered *Mesembryanthemums* and some of the "freeway" daisies which we are so used to here at home, make beautiful plantings and add much color to the garden. *Echeverias, Sedums, Kalanchoes* and *Pachyphytums*, their bright winter colors enhanced by the cold, all peer out from under some of the taller plants.

All those interested in seeing native plants and cactus and succulents in a natural setting should make this a "must to see" on their next visit to Santa Catalina Island. The site and garden are destined to become more beautiful and interesting through realization of the master plan which includes a herbarium, library, greenhouses, nature trails, horse trails, rustic bridges and groves of some of the native plants. □



Safari In San Diego County

by THELMA O'REILLY

Photos by Betty Mackintosh.

Thelma O'Reilly is President of the San Diego Bromeliad Society, and a shade plant judge. She grows and shows shade plants and succulents, but specializes in succulents. She is a fine author.

HAVE YOU dismissed dreams of joining plant hunting expeditions to faraway countries because of the time and expenses involved? Take heart! With an automobile and half a tank of gas, such dreams are possible in San Diego County.

Go visit Bill and Estie Seaborn and take in their garden/nursery located in Campo Del Dios (Camp of the Gods). It overlooks Lake Hodges and is surrounded with rolling hills and distant mountain peaks. Here, Bill and Estie have spent 25 years growing, collecting and selling plants.

Bill was well-prepared to enter the nursery field upon his retirement from the Navy in 1950. The previous five years had been spent studying and memorizing **BAILEYA**, the Horticulture Encyclopedia, while attending horticulture and floriculture classes at Palomar College.

His enterprise became reality when Bill started truck peddling geraniums and other plants to nurseries. The next three years found the Seaborns specializing in over 100 varieties of Philodendrons. There interest in tropical plants spread to Begonias, Ferns, Cycads, Palms and rare succulents.

While collecting in Mexico, Bill fell under the bewitching spell of exotic Bromeliads. Today he can well be called an expert on the subject.

In the late sixties, Bill realized the value of caudiciform plants and began to import them, along with other succulent "collector's items" from Africa, Madagascar, Australia, The Canary Islands, Germany and Japan.

Let's take a closer look at a few of Bill and Estie's unusual succulents that can be viewed during our safari . In a certain sunny area a handsome unidentified *Hechtia* species labeled 'Red Spot' will catch your eye. The medium rosette has light green leaves with widely spaced sharp spines. Each spine appears to be decorated with a dab of red rouge. *Hechtia marnier-lapostollei* is a beautiful small species with leaves having a silver dusted appearance.

Most collectors are familiar with *Beaucarnia recurvata* and will be thrilled to find four more *Beaucarnia* species in the area. The rare *Beaucarnia quatemalensis* from Chiapis, Mexico, has an interesting caudex with gray, deeply grooved bark. It has formed several new heads since it bloomed.

Rarely will you see so many specimens of the curious tree *Brachychiton rupestris*, commonly called the Queensland Bottle Tree. This Australian tree stores water in its trunk and can go for long periods without rain. It makes a fantastic bonsai subject.

Bill and Estie have collected a huge specimen of *Dioscorea* (formerly *Testudinaria*) *macrostachya* from Mexico. The natives claim this twenty inch wide specimen is about five hundred years old.

Look at this giant snail! *Bombax ellipticum,* found between Neuva and the Moroles area on the east coast of Mexico, has a caudex pattern with several shades of green on brownish gray bark. The dormant swollen leaf buds are about to burst on the white spotted green stems. Many of the succulents were in the leafless stage at the time of my safari .

A gnarled plant of *Senecio fulgens* from South Africa is topped with two blooming stems of bright orange flowers.

Plants can be bizarre and beautiful. The rare *Pachypodiums* fall into this category. As you look at different species from various African countries and Madagascar, it is difficult to choose a favorite because each has its own unique form.

Rare palms and cycads thrive under a huge oak tree which forms a patio canopy. Here, the atmosphere of tranquility is frequently interrupted by gay chatter and songs of resident and migratory feathered friends.

Try this safari—you won't be disappointed. □

Beaucarnia recuruata

Gasteria variegata

Pachypodium saundersii

Senecio fulgens

Picture Tour South of the Border

by BETTY MACKINTOSH

RIGHT

A giant Cardon or *Pachycereus pringlii* on the high desert plain near the Laguna Chapala area, expands its accordion pleats whenever it has a chance to absorb and store moisture. It is somewhat larger than the Saguaro of Arizona, having creamy-white blossoms borne irregularly near the branch tops in late May. It grows in most of the deserts of Baja California and in a small area of Sonora on the mainland.

BELOW

Cereus emoryi (Bergerocactus), named in honor of Lt. Emory of the United States Border Commission, extends a third of the way down the coast of Baja California. It is abundant on San Clemente and Santa Catalina Islands, but rare on the mainland of California. This photo was taken on the U.S. side of the International Boundary looking slightly south of west across the Border. Notice the bull ring at Playas de Tijuana in the background and also notice one of the Coronado Islands on the horizon.

leafin' thru

by ALLETHE MACDONALD

DEATH VALLEY WILDFLOWERS, Roxana S. Ferris, 150 pages with drawings by Jeanne R. Janish, 1974; $2.45 postpaid from Death Valley Natural History Association, Death Valley, California, 92328.

This book should accompany any lover of wildflowers who is either visiting Death Valley or just doing armchair travelling. The black and white drawings are superb with details large enough to make identifying a plant a relatively easy task. The drawings show the size and growth habit of each plant, and included is a detailed sketch of the flower and fruit with comments pointing out such details as wings on a fruit or the texture of a leaf.

The descriptions of each plant give both the common and botanic name and are excellent, being both concise and descriptive. Each page is devoted to the drawing and description of one plant. In thumbing through this book, I enjoyed the comments and drawings of the flowers I have known in the desert country, but even more, I enjoyed studying the many I do not know.

One of the joys of wildflower hunting is finding a flower you have known only on the pages of a book. The Panamint Daisy, *Enceliopsis argophylla grandiflora*, the emblem of the California Native Plant Society, is a plant I would especially like to see. The drawing in this book is of a bloom four to five inches across, with thick and silvery leaves. As the author says, "Daisy" is far too modest a name for such a magnificent flower.

Both the author and artist have published other equally delightful and informative books on wildflowers of other parts of the Southwest.

by WALTER BUNKER

FANTASTIC TREES, by Edwin A. Menninger, Viking Press, New York; $11.95; available only from Horticultural Books, P.O. Box 107, Stuart Florida, 33494

This is a second reprint of a 1967 book. It's a very interesting volume with many picutres and descriptions of nature's oddities in the world of trees. Illustrations and descriptions of several trees with unusual "natural" habits are featured. Also described are individual trees that, for no apparent reason, have developed renegade habits. Odd methods of propagation are interestingly covered in this book that I would describe as delightful reading.

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BEGONIAS

MARGARET LEE

- ✓ to keep feeding your plants on a regular schedule as they are in active growth.
- ✓ to water as needed—keep moist but not wet.
- ✓ to repot when roots grow through the drainage hole—use a light porous mixture and no larger pot than the second size bigger.
- ✓ to keep mildew under control as well as the insects, slugs and snails.
- ✓ to keep growing area clean.
- ✓ to trim lightly for shape—make "starts" from the cuttings.
- ✓ to obtain new varieties.

BROMELIADS

THELMA O'REILLY

- ✓ to empty water from foliage cups and refill with clean water.
- ✓ to remove offsets for the extra plants using a serrated edge knife.
- ✓ to gradually shift plants into brighter light for maximum color.
- ✓ to repot plants in larger pots and fresh mix if needed.
- ✓ to feed with half-strength fertilizer.
- ✓ to maintain pest control program—watch for snails and slugs.

CACTUS & SUCCULENT SOCIETY

NIBBY KLINEFELTER

- ✓ to weed, feed and seed—use any all-purpose fertilizer half strength.
- ✓ to "pot up" to the next size pot.
- ✓ to root cuttings for trading and gift giving.
- ✓ to water regularly and cultivate lightly when the soil is dry.
- ✓ to provide a dust mulch.
- ✓ to remove pups from *Echinopsis* for more blooms.
- ✓ to spray with one part rubbing alcohol to two parts water against mealy bugs, scale and aphids.
- ✓ to plant dwarf marigolds between succulents to control nematodes.

CAMELLIAS

CAPT. BENJAMIN BERRY

- ✓ to transplant those plants that have started new growth.
- ✓ to start fertilizing and to feed iron every other month.
- ✓ to use only acid type fertilizers—cotton seed meal, special camellia fertilizer mixes or liquid fish.
- ✓ to remember NOT to fertilize a dry plant—always water well the day before and immediately after applying a dry feeding.
- ✓ to continue pruning to promote good air circulation.
- ✓ to apply a loose mulch—pine needles fir bark.

DAHLIAS

ABE JANZEN

- ✓ to plant smaller varieties, and give regular care for the growing plants.
- ✓ to draw soil around plants as they progress in growth.
- ✓ to feed with low nitrogen fertilizer (4—10—10) dry or liquid.
- ✓ to spray weekly to control insects; guard against leaf miners, thrips and aphids.
- ✓ to pinch out center when two or three sets of leaves form.

EPIPHYLLUMS

DON E. IRWIN

to continue snail and slug bait around flowers.

to watch bud growth and prevent twising or bound buds.

to carefully remove wilted blooms with sharp knife—cut about ¾" from leaf.

EPIPHYLLUMS CONTINUED

✓ to watch for "over set"—if necessary, remove some buds from young plants.
✓ to take cuttings after flowering.
✓ to water carefully don't let dry out, but don't over-water either.
✓ to share your flowers with others.

FERNS

RAY SODOMKA

✓ to spray for aphids and scale.
✓ to remove all dead fronds.
✓ to fertilize with high nitrogen liquid or pellets.
✓ to divide, repot or add leaf mold or equivalent.
✓ to water and keep surrounding areas damp to help maintain humidity.
✓ to plant spore.

FUCHSIAS

WILLIAM SELBY

✓ to pinch, and shape your plants.
✓ to fertilize with a low nitrogen fertilizer (5-10-10), for blooms.
✓ to watch for white fly and inch worms—use a non-oily type spray.
✓ to watch watering if weather is warm—be careful NOT to over-water. Don't water on the roots in the sun (it will cook the roots).
✓ to fertilize at regular intervals with a higher phosphorus and potash forcing buds and blooms. Fuchsias are heavy feeders, but use a weaker solution more often.
✓ to turn your plants regularly to shape evenly.

GERANIUMS

GLORIA CAVANAUGH

✓ to turn plants for full development.
✓ to continue to groom and shape plants.
✓ to protect from hot midday sun.
✓ to feed low nitrogen fertilizer to encourage blooming.
✓ to spray with malathion or green soap to control pests.
✓ to watch for worms and caterpillars.
✓ to pinch out tops of plants to make them bushier.

IRIS

✓ to prepare beds for planting and transplanting tall bearded in July.

IRIS CONTINUED

✓ to keep dead stalks cut off unless hybridizing.
✓ to keep plants watered while blooming.
✓ to feed spurias with low nitrogen fertilizer.
✓ to feed Japanese iris with camellia food and give plenty of water—if they are not growing in water.
✓ to check and mark clumps to protect the names of the plants.
✓ to watch for aphids.

ORCHIDS

✓ to continue dividing cymbidiums that need it.
✓ to give cymbidiums plenty of light, water and food—use high nitrogen at this time for good growth.
✓ to repot cyprepediums after blooming.
✓ to use a non-oily spray for pests—use special snail granules against the pests.
✓ to continue light but frequent feedings for cattleyas.
✓ to make sure of good air circulation and humidity.
✓ to be sure to use fresh potting mixes for all repotting.

ROSES

SUE & DICK STREEPER

✓ to fertilize and maintain an abundant watering schedule following the peak of bloom.
✓ to prune twiggy growth and remove foliage close to the ground to discourage rust.
✓ to spray bushes with water from time to time to keep foliage clean and discourage mildew and mites.
✓ to remove spent blooms.
✓ to keep a good mulch in the beds to keep the roots cool.
✓ to enjoy the color and fragrance of rose bouquets in your home.

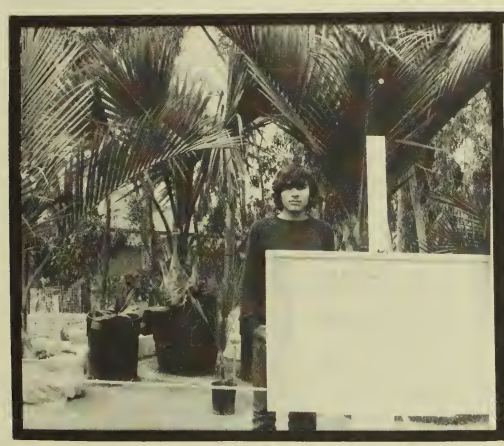
GREEN THUMB ITEMS

✓ to watch overhead watering—can cause rust and spread fungus.
✓ to feed azaleas and prune out dead wood.
✓ to plant gladiolus for fall color.
✓ to set out peppers and tomatoes and plant beans beets, corn cucumbers for summer crops.

(Editor's note: The material which follows on this page will appear in the May 1975 issue of CALIFORNIA GARDEN. It is printed here, in advance, with permission from that magazine.)

NEW PLANTINGS AT QUAIL GARDENS

A couple of generations ago, when we were children, Arbor Day was an important and memorable holiday. It was the day for planting trees, after which there inevitably was a game of tug-of-war, then a speech by the Mayor, then a big picnic lunch, and finally a very loud concert by the municipal band. But times have changed. In 1975, the Quail Botanical Garden, in Encinitas, was one of the very few places in California which bothered to celebrate Arbor Day. Among the local youngsters in attendance was David Ramirez, who happily posed to give size perspective to the many new palms and new cacti which were consecrated during the ceremony. The resulting photos, and details about the new Quail Gardens plantings, follow:



THE EXPANDED COLLECTION OF PALMS

Bill Gunther

Many new acquisitions have expanded the memorial palm collection at Quail Botanical Garden to the extent that there now are specimens of about 30 different palm species in the gardens. Some of the new specimens are of such age and size that they already are impressive exhibits. Selection of the new palms was made with the specific objective of obtaining specimens of diverse types which were not already represented in the garden.

Planting of the new palms will be coordinated with the development of the memorial waterfall and pond system which have been approved for the Palm Canyon area of the gardens. Acquisition of additional palm species is contemplated under the master plan for the gardens. Also contemplated is the publication of a self-guided tour pamphlet which would exclusively feature the palms of Quail Gardens. The expanded palm collection will be living verification of the fact that more different species of palms can be grown outdoors in this area than in any other area of the western mainland of the United States.

THE CACTUS AND SUCCULENT GARDEN

Gilbert Voss

The skyline of the denizens of the desert is being changed at the Quail Botanical Garden in Encinitas. Renovation of the two big desert gardens northwest of the main parking lot began this year. The beds have been divided to show evolutionary adaptations of flowering plants to xeric (dry) environments. A self guided tour is planned for the renovated cactus and succulent garden; it will be interesting and at the same time very educational.

Additional rockwork, additional paths, and new earth moundings already are in place; these provide a preview of the new landscaping contours of the display. As illustrated by the photo above, the stark outlines of the larger plant specimens create dramatic silhouettes against the sky.

The expansion of the Quail Garden's collection of cacti and succulents is being made by acquisition of specimens from all over the world, both through purchases and exchanges. Since the renovation includes moving large as well as small plants, the work will continue throughout this year.

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Pres: Mr. Martin Mooney—427-6796
97 "K" Street, Chula Vista 92011

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Third Wed., Casa del Prado, 7:30 p.m.
Pres: Capt. Ben H. Berry—435-2562
471 Country Club Lane, Coronado 92118

SAN DIEGO CHAPTER, CALIFORNIA NATIVE PLANT SOCIETY, Fourth Wed., Casa del Prado, 7:30 p.m.
Pres: Mr. Joe Seals—277-5507
3326 Towser, S.D. 92123

SAN DIEGO COUNTY DAHLIA SOCIETY
Fourth Tues., Casa del Prado, 7:30 p.m.
Pres: Mr. Abe Janzen—277-4473
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SAN DIEGO COUNTY ORCHID SOCIETY
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Pres: Mr. Rex Foster—466-0605
2645 Massachusetts Ave., Lemon Gr.

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765 Alta Vista Dr, Oceanside 92083

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Pres: Mr. Donald Irwin—469-2469
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319 South 39th Street., S.D. 92113

THE VILLAGE GARDEN CLUB OF LA JOLLA, Fourth Thurs., 1:00 p.m., L.J. United Methodist Church, 6063 La Jolla Blvd.
Pres: Mrs. David Westheim—459-9485
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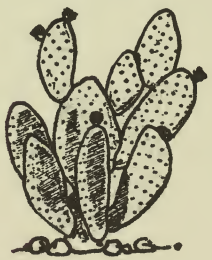

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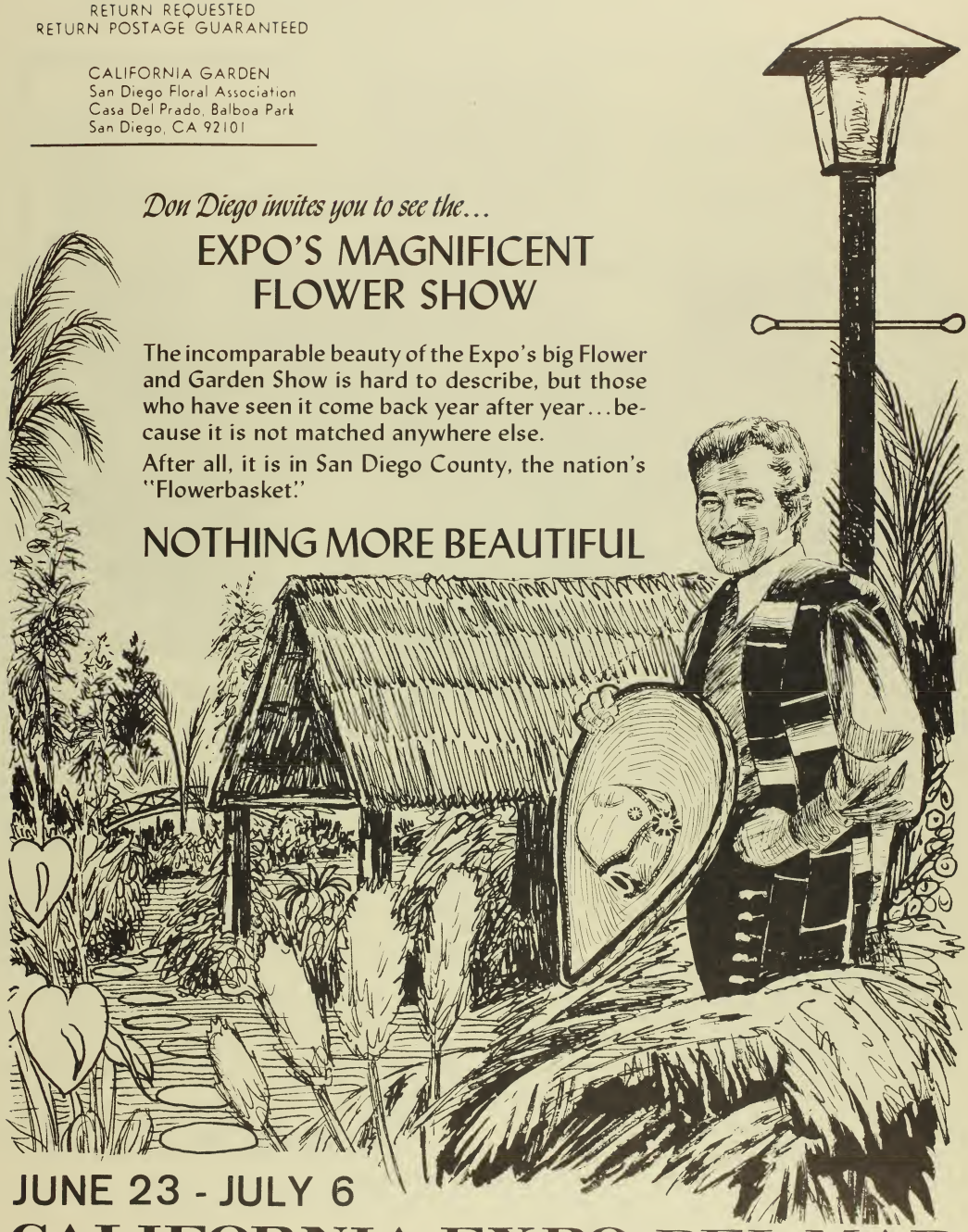

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